

REMARKS

This amendment is in response to the Office Action of June 4, 2007 in which claims 1-24 were examined.

The Examiner cites a new document US 6,614,910 (Clemow et al. [Central Research Laboratories]), and now he has rejected all the claims 1 – 24 under 35 U.S.C. § 103 (a) as being obvious for a person having ordinary skill in the art over a combination of US 2002/0097880 (Kirkeby), US 2002/0154783 (Fincham) and Clemow et al.

As stated earlier, both Kirkeby and Fincham are quite remote prior art: they both relate to sound reproduction through loudspeakers, not to optimizing the sound for headphones. A person having ordinary skill in the art appreciates that audio signal processing methods, especially spatializing, designed for loudspeaker reproduction are not generally applicable in headphones reproduction (see e.g. Kirkeby, at page 5, paragraph 0044 where the reason for this is explained). Furthermore, Fincham does not teach to process the monophonic signal component of a stereo signal, which is the basic idea underlying the present invention.

US 6,614,910 (Clemow et al.) discloses a stereo sound expander, which produces a spatialized sound image by coupling modified and unmodified stereo signals. Clemow discloses embodiments for both loudspeaker reproduction and headphones reproduction. A pair of HRTFs is used to produce near ear and far ear audio signals. Then the far ear HRTF is not modified and the near ear HRTF is equalized with its own reverse, which produces a flattened frequency response with only minor tonal changes at an intermediate listening position (i.e. between left or right extremes and center) of virtual speakers.

Thus, Clemow teaches to aim at a trade-off, wherein the intermediate position is made tonally flat, but with the expense of both the center and the extremes being in error (col. 4, lines 53–56), thereby providing a reasonable

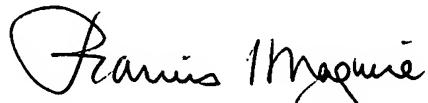
compromise for both loudspeakers and headphones. However, the present invention aims to a solution, wherein the center position is made tonally flat, thereby enabling the monophonic component common to both stereo signals to be perceived substantially free of disturbing artifacts, when listening through headphones.

The difference to Clemow is further emphasized by an amendment of claim 1 with the subject-matter of claim 6: "...processing the monophonic signal component to obtain a processed monophonic signal component, wherein the processing includes adjustment of the gain of said monophonic signal component,...", which refers to the gain adjustment  $g_m$  applied to the filter  $H_m(z)$ . A preferable value of -5 dB for the gain adjustment (page 16 of the application) is included in the amended claim 6. Similar amendments have been made to other claim categories. Please find enclosed the amended claims.

Thus, for achieving the above-stated aim, a near-ear HRTF ( $H_m(z)$ ) is used, which HRTF has low-frequency magnitude response about 5 dB lower than the high-frequency response. This is quite opposite to the teaching of Clemow to use the near-ear HRTF as a bypass function: "In the present invention, the NEAR ear HRTF is of course not used, as it is replaced by a flat response" (col. 5, lines 41-42).

The objections and rejections of the Office Action of June 4, 2007, having been obviated by amendment or shown to be inapplicable, withdrawal thereof is requested and passage of claims 1-24 to issue is earnestly solicited.

Respectfully submitted,



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